

NATIONAL DEFENSE UNIVERSITY

NATIONAL WAR COLLEGE

NUCLEAR STRATEGY IN THE NEW WORLD ORDER

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Report Documentation Page			Form Approved OMB No. 0704-0188	
<p>Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.</p>				
1. REPORT DATE 2002	2. REPORT TYPE	3. DATES COVERED 00-00-2002 to 00-00-2002		
4. TITLE AND SUBTITLE Nuclear Strategy in the New World Order		5a. CONTRACT NUMBER		
		5b. GRANT NUMBER		
		5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S)		5d. PROJECT NUMBER		
		5e. TASK NUMBER		
		5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) National War College,300 5th Avenue,Fort Lesley J. McNair,Washington,DC,20319-6000		8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)		
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited				
13. SUPPLEMENTARY NOTES The original document contains color images.				
14. ABSTRACT see report				
15. SUBJECT TERMS				
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 15
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified		

NUCLEAR STRATEGY IN THE NEW WORLD ORDER

Introduction. The nuclear age was born at New Mexico's Trinity test site on July 16, 1945.

Within a year, even without a nuclear-capable adversary, the United States developed its first nuclear war plan (PINCHER) that called for an attack on 20 Soviet cities using 50 atomic weapons.¹ However, in August 1949, the Soviet Union exploded its first atomic device—"the bomb" changed the superpowers' national strategic calculus forever. The Americans and the Soviets stood at the brink of a nuclear war throughout the Cold War, but the nuclear weapon was never employed.

For 50 years, the US depended on its nuclear arsenal to provide the underpinning to the deterrent aspect of its military strategy. However, on September 11, 2001, three of four hijacked civilian aircraft successfully completed their suicide missions against high value targets in the United States—the World Trade Center and the Pentagon. US military might, to include its overwhelming nuclear arsenal, failed to deter the terrorists who killed nearly 3000 people, most of whom were Americans. Although the US nuclear force structure, policy and strategy have thus far deterred a nuclear attack on the US, it is not properly postured as a viable deterrent against asymmetric attacks. However, given the proper force structure, policy and strategy, the US nuclear arsenal could provide a greater degree of deterrence against such attacks in the future.² This paper will first briefly describe the strategy of deterrence and its underpinnings in basic psychology. Second, it will briefly overview the deterrence strategy of the Cold War and highlight the findings of the Nuclear Posture Review that will serve as the foundation of the Bush nuclear strategy. Next, this paper will consider the ethical issues surrounding the use of nuclear weapons, as both a deterrent and a combat weapon. Finally, the paper will analyze US nuclear strategy and make policy recommendations for using nuclear weapons as part of a deterrent strategy against future asymmetric attacks.

What is Deterrence? The key components of a basic deterrent strategy are the means to

inflict pain (capability), the willingness to carry out the act that will inflict the pain (intent) and a clear communication of the “act” or “behavior” that will trigger the application of pain.³ Deterrence assumes that the adversary will make a calculated risk assessment and avoid the behavior that will trigger the pain inflicting action. In the case of the two largest nuclear powers, the time to make this calculation has been reduced to minutes due to the high alert status of many US and Russian forces and their ability to travel to their targets in a matter of 30 minutes or less.⁴ It is key to note that deterrence is not based on the weapon system; it is based on the calculations made by the individuals or actors involved in the exchange.⁵ The nature, structure and functions of deterrence are quite literally unchanged from its first inception, but its implementation is in constant flux due to technological advancements in weaponry and technology.⁶ The keys to enhancing deterrence are an impressive offensive capability, a track record of promises kept and a steadiness and clarity of policy.

B.F. Skinner’s research on motivation theory—behavior modification—best explains successfully deterring an opponent, or failing to deter.⁷ B.F. Skinner suggests that by “threatening” a punishment for an improper act, an actor can modify the behavior of others—in many cases against their will if the threatened punishment is severe enough or it strikes at something of critical importance.⁸ Similar to deterrence theory, the act that will trigger the punishment and the impending punishment itself must be clearly understood by the party being deterred.

However, there is one aspect of the deterrence equation that is not fully addressed by Skinner’s theory—a facet best explained by expectancy theory.⁹ Expectancy theory suggests that the actor being deterred must also believe that the painful act will be carried out as promised. Deterrence depends not only on the capability of an actor to carry out the promised punishment, but also the willingness to follow-through on the threat—actually punish the behavior. Key to the US-Soviet nuclear deterrent success was the belief that the other side was capable and willing to

carry out a full nuclear retaliation in response to even a limited nuclear strike—a belief that has thus far deterred nuclear aggression on both sides.¹⁰

Nuclear Deterrence, Then and Now. From the beginning of the nuclear age, the nuclear superpowers built their deterrent strategy on the premise that they could deter a nuclear war if the other side believed that the result of such an attack would produce an unacceptable level of retaliatory destruction. What matters most in nuclear deterrence is not necessarily the size and efficiency of the adversary's striking forces at the beginning of an exchange, but rather the size an opposing force thinks he can reduce it to by conducting a surprise attack.¹¹ This basic idea led to the development of Massive Retaliation under the Eisenhower administration—using nuclear weapons as an integral part of the American defense strategy, a weapon of first resort if needed.¹² Eisenhower's policy, delineated in NSC-162/2, emphasized a strong military posture, with emphasis on the capability to inflict massive retaliatory damage through lethal offensive striking power. Additionally, NATO adopted this policy as its initial nuclear strategy in 1954. NATO called for the use of tactical nuclear weapons to delay and defeat a Soviet invasion on the European continent. This policy led to the concept of maintaining forces on high alert—a model still employed in the ICBM and SLBM forces of the US and Russia.¹³

When John F. Kennedy began his administration in the early 1960's, the concept of Flexible Response became the strategy of choice. Instead of relying on retaliatory strikes aimed solely at cities and population centers, JFK's concept provided a flexible response that differentiated between Soviet nuclear forces, conventional forces not collocated with cities, forces near cities, command and control centers and urban industrial targets.¹⁴ Such a counter-force strategy, as opposed to the counter-value strategy of massive retaliation, was deemed to hold at risk their ability to make war, not necessarily their ability to live and function as a society.¹⁵ The development of space-based early warning, surveillance and reconnaissance made such a policy and concept feasible.¹⁶

The US nuclear deterrent continued to grow in number and in the sizing and scope of targeting options throughout the Nixon, Carter and Reagan years. However, the basic concept of mutually assured destruction continued to serve as the underpinning to each administration's nuclear policy.¹⁷ Additionally, it was during these years that the Strategic Arms Limitation Talks (START) began—a series of negotiations that eventually limited and reduced the number of weapons and delivery vehicles in the US and Russian inventories. The dissolution of the Soviet Union in the early 1990's gave way to further agreements in arms control, but yielded little real progress in stockpile reduction or the threat of nuclear war.¹⁸ The Bush (senior) and Clinton administrations continued the pursuit of nuclear arms reductions, but maintained a full nuclear arsenal to provide a deterrent force for American military strategy, even after the end of the Cold War. In fact, during the Gulf War, many believe that it was president Bush's ambiguous threat of nuclear retaliation that kept Iraq from launching a strike with WMD.¹⁹

George W. Bush recently unveiled the Nuclear Posture Review, his administration's policy and strategy for nuclear weapons.²⁰ Although the administration continues to support a nuclear triad as the centerpiece of nuclear force structure, the administration seeks to reduce the force from the current 6000 warheads to something less than 2000 over the next several years. Administration officials suggest that their strategy

“... better reflects today's geopolitical reality, in which the rigidly defined threat of one superpower adversary has been supplanted by the bewildering uncertainties of the post-Cold War world.” The requirements driving such a strategy “boil down to deterrence of Russia and China, deterrence of attacks by rogue states, and the very unlikely (but not impossible) need to use a nuclear weapon to pre-empt chemical or biological attack on the United States.”

Some argue this strategy is nothing more than a watered down version of the cold war posture...same strategy, fewer weapons. However, it is clear that the Bush administration has not ruled out a first use option, but it has not explicitly spelled it out either. This element of ambiguity makes the decision of a potential adversary to accept deterrence more difficult for him to make—the

specific consequences of his unwanted, aggressive behavior are not crystal clear, nor is the specific act that will trigger the consequences.²¹

Ethical Considerations. Fundamentally, nuclear weapons pose two major moral problems.²²

First, their intense destructive power is more than just blast—the heat and radiation can create greater and longer-term destruction than conventional weapons. For example, nuclear weapons can cause disease from radiation exposure years after the attack, depending on the type of weapon design and employment strategy.²³ Second, because of this extraordinary destructive power, nuclear weapons tend to be much more indiscriminant than conventional weapons. Because of these attributes, it is difficult for a rational person to apply ethical reasoning and arrive at a moral decision to employ nuclear weapons. However, this conclusion is mainly based on the assumption that all nuclear weapons are hundreds if not thousands times larger than the bombs dropped on Japan—an assumption that is simply not true.²⁴

In his book *International Ethics: Concepts, Theories and Cases in Global Politics*, Mark Amstutz outlines the basic strategies of ethical decision making; ends-based (consequentialist), rules-based (deontologist) and tri-dimensional (political). For the consequentialist, the goals and means of a political action must be justified by the results of such actions. Nuclear deterrence is morally justified by considering the ends or outcomes—the act of deterring war via the threat of nuclear retaliation is not evil because its intended goal of preventing nuclear war is essentially good.

The deontologist, or rules based thinker, would consider the morality of the goals and means to determine if action is to be taken without consideration of the policy outcomes themselves. The deontologist asserts that one must judge action on its inherent rightness or wrongness, not by the effects of its actions (policy outcomes). In this case, if one assumes that unleashing the US nuclear arsenal is an evil act, then regardless of the consequences, nuclear deterrence would not be justified based on the means—the threat of nuclear annihilation.

The tridimensional strategy is more suited to political decisions because the motives, means and consequences are all considered in the process. This relative congruence allows policy makers to debate and compromise on policy choices and provides a means to incorporate both ends- and rules-based thinking into the process. The decision to proceed with the Strategic Defense Initiative (SDI) serves to illustrate this ethical strategy. Since SDI was designed to protect society from utter destruction, one can hardly argue over the morality of the intentions or motives. The means of SDI were to be a constellation of satellites and lasers designed to destroy enemy missiles during flight. Compared to MAD, a strategy that threatened total destruction of both sides, it is clear that SDI is moral from the means perspective. In terms of consequences, SDI is more difficult to discern from an ethical perspective. First, it was unclear if SDI would halt or reverse the arms race, or serve to reduce the spread of nuclear arms. Second, SDI could be judged to reduce the effects of wartime damage; however, it was not convincing that it would likely prevent a nuclear or conventional war from occurring. Finally, the costs of developing and fielding SDI were projected to be in excess of \$500B—the effects this would have on the economy and other national programs was difficult to predict, but had potentially negative effects. Based on the preponderance of evidence, the tridimensionalist would view SDI as moral, but not without room for debate and compromise.

Nuclear Strategy for the New World Order. The deterrent strategy that served the US well during the 50 years of the Cold War failed on September 11, 2001. Although the US possessed a tremendous offensive nuclear capability, the terrorists were not deterred. This lack of success was a direct result of the current nuclear force structure, policy and strategy—and this inability to deter terrorists will not change if President Bush implements the Nuclear Posture Review's recommendations. The current US force structure, policy and strategy do not translate into an effective deterrent. First, the present weapon systems do not have the capability to deliver smaller, precision strikes. Instead, they are designed for counterforce targeting of similar nuclear assets and

infrastructure. Second, a policy of “no first use” except against nuclear declared nations, or nations aligned with nuclear declared nations who use WMD, leaves many states, and especially non-state actors, with the impression that the US is unlikely or unwilling to use a nuclear weapon (a point amplified given the size of the weapons in our stockpile). Finally, the *executed* strategy since 1945 has not included nuclear weapons, thereby enforcing the idea that the US is unwilling, or possibly incapable, of using its nuclear weapons to achieve national objectives.²⁵

By examining US actions since 1945 through the calculating eyes of an adversary, such as the terrorists who planned the attacks of September 11, it becomes clear that the nuclear piece of the overall deterrent strategy is flawed.²⁶ First, if the US desires to continue using nuclear weapons as part of a deterrent strategy against WMD or terrorist attacks, the force structure must provide feasible options.²⁷ The current inventory of 6000+ warheads does not pose a credible threat to an adversary who does not possess an asset that requires hundreds of kilotons or megatons to destroy—using such weapons for soft targets creates political and moral dilemmas due to their very nature. However, the US should design and field smaller tactical weapons that produce fewer of the radiological fallout effects.²⁸ Additionally, these smaller weapons should be built into earth-penetrating munitions to reduce significantly the chances of dispersing radiological debris.²⁹ Furthermore, safeguards must be designed into the weapon to ensure that a nuclear yield only occurs under the proper conditions—only when the weapon is at its proper depth under the earth. Such a weapon could destroy deeply buried targets, or structural targets near the aim point via the tremendous shockwave radiating through the ground.³⁰ These smaller, earth-penetrating weapons would not produce the same, massive effects of their Cold War counterforce counterparts, therefore serving to somewhat mitigate the moral arguments associated with the intense heat and prolonged fallout effects, as well as the indiscriminate nature of employing nuclear weapons.³¹

Second, if nuclear forces are to act as a deterrent, then the US nuclear policy must be clear,

and without loopholes, to ensure that a potential adversary clearly understands the types of *behavior* that will trigger a nuclear response. In recent years, many attacks on US assets, both abroad and on US soil, have occurred with little or no consequences to the perpetrator. For example, state-sponsored terrorists utterly destroyed two US embassies, killing hundreds of people, and the US response consisted of several dozen conventional cruise missile attacks. Even an attack on the World Trade Center in 1993, a building on US sovereign soil, and an attack on the *USS Cole*, a piece of US sovereignty, did not elicit a nuclear response—and the list could go on ... to include the attacks of September 11.³² Although many experts argue that the US nuclear policy is ambiguous in terms of when nuclear weapons would be employed (except in response to a nuclear attack), the attacks of September 11 suggest that the US does not use them in response to the killing of ~3000 innocent civilians on the US homeland.³³ Terrorists continue to raise the bar in terms of the size and scope of their attacks, and the US nuclear policy bar continues to rise with them. Deterrence requires a clear and unequivocal communication of the *behavior* that will trigger the punishment. The US responses since 1945 have served as a surrogate communication of US policy. In the minds of potential adversaries, “I’m not sure what might trigger the US to punish us with nuclear weapons, but we aren’t there yet.”

Finally, the US strategy for nuclear weapons is based solely on Cold War deterrence theory—another fatal flaw in the US deterrent strategy. As indicated in the Nuclear Posture Review (NPR), the US nuclear posture (and strategy) must continue to provide for a deterrent against the Russians and Chinese arsenal—a posture that will reduce the number of weapons in the inventory, but not the counterforce targeting or employment strategy of these weapons. Although the NPR does suggest that nuclear weapons *could* be used to preempt a WMD attack or development program, the NPR fails to articulate the kinds of weapons or policy that would support such a strategy—the author argues this void is a flawed “promise” of a nuclear response. Once again, viewed from the

asymmetric adversary's eyes, this strategy does little, if anything, to serve as a credible deterrent for future attacks. It does not provide a credible capability for nuclear weapons use against non-nuclear assets, nor does it articulate a clear willingness to use nuclear weapons, or when the US would use them. This strategy simply does not provide the negative reinforcement (deterrence) required to affect the opponent's decision to be deterred.

Conclusions. The direction the US must pursue is clear. Nuclear weapons can provide a degree of deterrence for terrorist attacks, or attacks by actors using/possessing WMD, given a force structure with smaller, earth-penetrating weapons, a clear policy that clearly communicates the trigger behavior that will elicit a nuclear response, and a strategy to ensure the policy can be carried out. This deterrent posture is built upon the underpinnings of sound deterrence theory and holds up to ethical decision making strategy.

First, the proposed force structure provides a more robust capability for the US to inflict appropriate pain, rather than the indiscriminate counterforce weaponry in the current inventory. Second, the communication of clear triggers for a nuclear response takes the first step toward indicating the US willingness to use nuclear force.³⁴ Converting some weapons to a smaller, earth-penetrating design also contributes toward an adversary believing the US might actually employ nuclear weapons. Additionally, such weapons more appropriately and realistically hold deeply buried or isolated targets at risk than larger counterforce designs.

Although it is clear that this posture is built on sound theoretical footing, the more difficult test is ethical scrutiny. First, considering that on 11 September nearly 3000 people lost their lives because the US failed to deter the perpetrators, it is fairly easy to determine ethically that striking against or deterring such aggression is a just cause. Second, using nuclear weapons to strike at terrorists, or actors who use or possess WMD, does not completely meet the means test, but the proposed weapon design and tactics reduce the ethical costs associated with nuclear weapons.³⁵

Furthermore, many of the people in the World Trade Center experienced the heat equivalent to the energy produced by a nuclear reactor—somewhat mitigating the moral objections to nuclear weapons as an instrument of military power. However, the more difficult judgment, open to much debate, is the consequences of using nuclear weapons. As previously pointed out, from a pure deterrence perspective, the argument is quite clear and ethical. Nevertheless, the actual employment of nuclear weapons poses a different dilemma. Although the proposed weapons design and tactics reduce the massive destructiveness and indiscriminate nature of the weapon, there are other consequences to consider such as stimulating proliferation, a new nuclear or WMD arms race or the political fallout from any deviations from current nuclear-related treaties such as the Comprehensive Nuclear Test Ban. However, given that fact that it is impossible to prove a negative (the results derived by abstaining from nuclear use), it is equally difficult to argue that employing nuclear weapons will produce these consequences or to what degree.

Deterring future terrorist attacks and world actors from using or developing WMD is a noble cause—a cause that can be achieved through nuclear deterrence, and if needed, employing nuclear weapons. Additionally, such a strategy is underpinned by sound deterrence theory. However, the ethical dimensions of this strategy are difficult to resolve, but not impossible. The debate must begin before the next “evil doer” decides not to be deterred.

¹ Richard A. Paulsen, *The Role of US Nuclear Weapons in the Post-Cold War Era* (Maxwell AFB Ala.: Air University Press, 1994), 1.

² The author acknowledges that deterrence is not 100% guaranteed—it depends on the decisions of your adversary for it to be successful. Additionally, some actors simply cannot be deterred from a specific action. However, the author argues that the consequences of WMD attacks, or other large-scale terrorist attacks like those on September 11, warrant the attempt to deter those whom can be deterred.

³ Thomas C. Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 1966), 3-4.

⁴ The descriptions of the conduct and character of nuclear warfare are written based on the author’s experience as a United States Air Force officer and Master Missileer. Lt Col Parks served as a missile combat crewmember in the Minuteman III intercontinental ballistic missile weapon system from 1984-88 and subsequently served as an Emergency War Orders Instructor, Operational Flight Test Manager and Command Briefing for the Space and Missile Orientation Course from 1988-92. Additionally, he conducted nuclear operability and survivability assessments for the United

States Strategic Command and the United States Space Command/North American Aerospace Defense Command while assigned to the Defense Special Weapons Agency from 1996-98. Additionally, he served as the Operations Officer of the 91st ICBM Operations Support Squadron in 1998 and most recently commanded the 742d Missile Squadron, at Minot AFB, ND from 1999-2001.

⁵ World actors, whether armies of ancient empires or nuclear superpowers, have always employed the basic concept of deterrence to keep the peace or to convince another actor to behave in a way that is contrary to what they would ordinarily do in a given situation. However, many people associate the strategy of deterrence only with nuclear weapons—a false assumption.

⁶ Colin S. Gray, “Deterrence in the 21st Century,” *Comparative Strategy (July-Sept 2000)*, p. 255.

⁷ B.F. Skinner’s theory of motivation suggest that behavior can be modified through four methods; positive reinforcement, negative reinforcement, punishment and extinction. Positive reinforcement provides a reward after a proper behavior; negative reinforcement threatens punishment for a given bad behavior; punishment provides “pain” after an incorrect behavior; and extinction provides no reinforcement for behaviors in hopes that the unwanted behavior will extinguish without reinforcement. Deterrence is the application of negative reinforcement to convince an actor not to take an unwanted action—in this case, aggression.

⁸ Andrew J. Dubrin, *Fundamentals of Organizational Behavior*, (New York: Pergamon Press Incorporated, 1988), p. 60-1.

⁹ Expectancy theory is explained by Victor Vroom as having three components; the degree to which an individual believes that he can put forth effort to accomplish a task; the degree to which an individual desires the consequences associated with a given task completion; and the degree to which the individual believes that the consequences will be forthcoming as a result of task completion. Vroom also suggests that this theory is relevant with regard to negative outcomes such as those addressed in Skinner’s negative reinforcement, behavior modification theory. By combining these theories, it becomes clear that not only must an individual desire to avoid the punishment being threatened, but he must also believe that the punishment will be carried out if he performs the undesired behavior.

¹⁰ Paulsen, 38.

¹¹ Bernard Brodie, *Strategy in the Missile Age* (Princeton, NJ: Princeton University Press, 1965), 281.

¹² Paulsen, 4-6.

¹³ Both Russia and the US maintain a nuclear TRIAD. Each leg of the nuclear triad provides strengths and has vulnerabilities. The fixed, land-based ICBM is the most cost effective, accurate and responsive, but the most vulnerable—even in an underground hardened silo. Additionally, the Soviet Union also deploys a rail and road mobile system that increases its survivability once deployed from garrison—a characteristic proven in the 1991 Gulf War as the US attempted to destroy mobile Scuds in Iraq. President Bush scrapped US plans for a mobile ICBM in 1991, after the Gulf War. The SLBM is extremely survivable due to its ability to avoid detection, but is expensive to maintain and less responsive than ICBMs. The manned bomber is incredibly flexible (including the ability to be recalled after launch), but is the least accurate and responsive. Additionally, the manned bomber requires sufficient strategic warning in order to generate aircraft for launch. In 1991, President Bush stood down all of the US bombers from nuclear alert. The Soviet Union followed suit.

¹⁴ Paulsen, 9-11.

¹⁵ This concept was known as assured destruction, which eventually gave way to the term mutually assured destruction (MAD). However, MAD was never an official US policy.

¹⁶ Here the author refers to such programs as the Defense Support Program; infrared sensors used to detect missile launches from outer space and relay warning information to decision makers on the ground in secure command and control centers.

¹⁷ Although it is true that President Reagan introduced the Strategic Defense Initiative as an alternative to nuclear annihilation, the concept was never fielded nor was it part of the strategy of nuclear deterrence. Additionally, it was during this timeframe that the US moved away from a “first use” policy, mainly due to the signing of the Nuclear Non-Proliferation Treaty.

¹⁸ For example, in 1994 Presidents Clinton and Yeltsin created a false sense of security throughout the world when they claimed, “strategic nuclear missiles were no longer aimed at one another.” Although this symbolic agreement made great headlines and created a sense of relief in the public, it did little to affect the essential procedures of targeting Russian missiles—a procedure that takes as little as 10 seconds. US missiles can be retargeted in minimal time as well.

¹⁹ By using the term ambiguous the author is referring to the fact that President G.H.W. Bush, nor anyone on his staff, publicly announced the specific consequences of Iraq using WMD, but rather said that “all options are on the table” if Iraq chooses to use WMD against US or coalition forces.

²⁰ Robert S. Dudney and Peter Grier, “Bush’s Nuclear Blueprint,” *Air Force Magazine*, 85 (March 2002): 9-14.

²¹ In March 2002, the *Washington Post* reported that a Pentagon report suggested a preemptive nuclear strike as a possible strategy to defeat WMD. However, Secretary Powell and a Whitehouse spokesperson were quick to respond to the alleged strategy. “We do not have a declared policy of preemption,” said Secretary Powell. However, a senior administration official indicated that it was important for the US to develop an earth-penetrating nuclear weapon to destroy underground WMD facilities. Secretary Powell restated US policy not to use nuclear weapons preemptively on a state who promised not to develop or build nuclear weapons, but he did state that all options are on the table. The administration policy is obviously quite ambiguous. Perhaps, such ambiguity limits the effectiveness of deterrence.

²² Mark R. Amstutz, *International Ethics: Concepts, Theories and Cases in Global Politics* (New York: Rowman and Littlefield Publishers, Incorporated, 1999), p. 31.

²³ For example, the bomb dropped on Hiroshima was a crude fission weapon, dropped well above the earth’s surface. In this case, the radiation was spread not only because of the nuclear explosion, but also because of the employment tactic—airburst. Additionally, the design of the nuclear device determines the types and percentages of outputs—heat, types of radiation (gamma, X-ray, neutrons), blast, etc. These factors all contribute to the degree and length of effects.

²⁴ During the height of the Cold War, both the Soviet Union and the United States produced small, tactical weapons that were of the fraction to single digit kiloton (KT) range. The bombs dropped on Japan were reportedly in the 10-15 KT range, and were simple designs as compared to the more modern weapons designs of the late 1980’s. The newer designs produce less of their output in radiation than the rudimentary fission weapons the US used in 1945.

²⁵ For example, during the Korean War, General MacArthur urged the President to use nuclear weapons, but was overruled. Nuclear weapons have been included in written plans and strategy, but never executed (used).

²⁶ In a lecture to the National War College, Thomas C. Schelling, pointed out that when using a deterrent strategy, one gives the decision making to the enemy—he decides to be deterred or not. No force in the world will guarantee deterrence will work, but by applying proper principals to the strategy, one can hedge the position in favor of deterring an opponent.

²⁷ Here the author is referring to the argument that nuclear weapons have no military value, nor can they achieve national objectives in support of national interests. Given that the US stockpile was designed to counter the former Soviet Union, both their nuclear and conventional forces, it should come as no surprise that US weapon systems are not capable of performing smaller, more specific missions.

²⁸ Samuel Glassstone and Philip J. Dolan, *The Effects of Nuclear Weapons*, 3d ed., United States Department of Defense and Department of Energy, GPO, 1977, p. 14-16.

²⁹ In the mid 1990’s, the Defense Special Weapons Agency built an earth-penetrating weapon, a modified B-61 (Mod 11) gravity bomb. However, the warhead was not reduced in size from its typical B-61 configuration, mainly due to limitations within the Department of Energy’s infrastructure and Congressional pressures not to build new weapons. Additionally, more research/development is needed to develop a deeper penetrating design to reach the depths required and ensure the survivability and reliability of the nuclear device.

³⁰ Admiral Stansfield Turner, USN retired, in his article *The Dilemma of Nuclear Weapons in the 21st Century*, points out that the US Senate Armed Services Committee has discussed the possibilities of building a small device, comparable to the size of the weapon suggested by the author. Such discussion, and the delay of the ratification of the

Comprehensive Nuclear Test Ban Treaty, suggest that the use of nuclear weapons, or the development of newer designs, is not completely “off the table” at the national level.

³¹ These are the two main moral arguments posed by General Lee Butler, USAF retired, in a speech to the National Press club in 1998. Since his retirement, General Butler has led the public outcry for the complete elimination of nuclear weapons. General Butler was the Commander in Chief, United States Strategic Command—the nuclear CINC—prior to his retirement. The weapon suggested by the author would be capable of digging itself underground, sufficient enough to create a “tomb” for the radiological effects, but yet create the shockwave for the destructive effects. This technical approach is the same concept used to contain underground testing at the Nevada Test Site.

³² The author is not suggesting that each of these incidents should have resulted in a US nuclear response. But rather, the current ambiguous policy on nuclear use, coupled with the seemingly limited responses for each of these attacks, sends a strong message to a potential adversary—and not the one that supports a deterrent strategy.

³³ David E. Sanger, “Bush Finds that Ambiguity is Part of Nuclear Deterrence,” *The Washington Post*, 18 March 2002, sec A, pg A3.

³⁴ The author is not suggesting that nuclear use should be taken lightly. The level at which the US should “promise” a nuclear response should likely be tied to vital interests of national survival. Without such a high level, the US would be on weak moral footing in terms of proportionality of response.

³⁵ The author acknowledges that there would be huge political consequences for using nuclear weapons—a fact that would be calculated into the decision to employ the weapon, as well as in determining the stated US policy for nuclear weapons as part of the US national security strategy.

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